

REMARKS

By the present amendment, the status of the parent application has been updated and the specification at pages 8 and 10 have been amended to utilize the reference numerals as shown in Figures 7 and 10 of the drawings. Accordingly, the objection to the disclosure should now be overcome.

Also, by the present amendment, claims 1 - 11 have been canceled without prejudice or disclaimer of the subject matter thereof and new claims 12 - 17 have been presented wherein claim 12 and its dependent claims are generally directed to the structural arrangement as illustrated in Figure 7 and claim 16 is directed to the structural arrangement illustrated in Fig. 10, as will be discussed below.

Turning to new independent claim 12, such claim is directed to a plasma processing apparatus of the type as illustrated in Figure 7 including a power source 26 which applies bias power to an electrode 22 on which a substrate 21 to be processed is disposed. As described at page 8 of the specification, as amended, and insulating layer 22a which is described as an alumina film, and at the ring portion 23A thereof, as a first conductive material 23 representing an electrode of tungsten buried therein. As illustrated and described, a feeder line 24 connects the power source 26 to the conductive material 23 and a first variable capacitor 25 is provided in such feeder line. Additionally, a silicon ring 27 is disposed on the surface of the electrode 22 at a position surrounding the substrate 21 to be processed and a second conductive material in the form of an electrode 28 of tungsten is buried in the insulating film 22b provided under the silicon ring 27. Furthermore, a second feeder line 29 connects the power source 26 and the second conductive material 28 and a second variable capacitor 30 is provided in such feeder line. Applicants note that new independent claim 16 recites a plasma processing apparatus, as illustrated in

Fig. 10 for example, having a high-frequency power source 46 for applying bias power to an electrode on which a substrate to be processed is disposed and in which a insulating layer in the form of alumina and having a portion 41A is formed on a surface of the electrode on which the substrate to be processed is disposed. As shown, a conductive material in the form of an electrode 41 is embedded or formed within the insulating layer at the portion 41a, and a feeder line 42 connects the high frequency power source 46 and the conductive material 41, with a variable capacitor 43 being provided in such feeder line. Also, as illustrated in Figure 10, a direct current power source 47 is connected between the electrode and the high frequency power source 46. Accordingly, as illustrated in Fig. 10 and recited in dependent claim 17, a resonance coil 44 is coupled to the variable capacitor 43 and another resonance coil 45 is provided between the direct current power source 47 and the electrode.

As is apparent from independent claims 12 and 16, a common feature is that a conductive material is formed within the insulating layer representative of the conductive material or electrode 23 in Figure 7 and the conductive material or electrode 41 in Fig. 10, which insulating layer is formed on the surface of the electrode such as 22 in Fig. 7, with the conductive material being connected by way of a feeder line to a high frequency power source having a variable capacitor (25 in Fig. 7) and (43 in Fig. 10). In addition to such common feature and other features of Figs. 7 and 10 as recited in claims 12 and 16, it is noted that claim 12 recites the feature of another conductive material, represented by the conductive material or electrode 28 in Fig. 7, is connected by way of a feeder line having a variable capacitor 30, and such conductive material 28 is provided under the silicon ring 27.

Applicants note that such structural relationship provides advantages as described in the specification of this application, wherein respect to the common feature, as described above, since the insulating layer is provided on the surface of the electrode, a wafer can be clamped by an electrostatic force so that no mechanical clamping of the wafer becomes necessary and the state of the wafer mounted on the lower electrode may be maintained uniform over the center and periphery of the mounted wafer while enabling increasing of the effect resulting from capacitance adjustment using the variable capacitors 23, 30 and 43, for example. As to the feature concerning the location of the electrode embedded in the insulating layer and under the silicon ring, such enables the directivity of ions injected to the outermost edge portion of the wafer to be adjusted and the deviation (deviation from a vertical line) of an injecting direction of ions toward the wafer, which is caused by consumption or change in height of the silicon ring, can be compensated or corrected. Applicants submit that the structural arrangement as recited in independent claims 12 and 16 and the dependent claims and the advantages as described above, are not disclosed or taught in the cited art, as will become clear from the following discussion.

The rejection of claims 1, 2, 3 and 5 under 35 USC 103(a) as being unpatentable over Masuda et al (US Pub. No. 2002/0005252) in view of Seiichi et al (JP Pub. No. 08-316212); the rejection of claim 4 under 35 USC 103(a) as being unpatentable over Masuda et al in view of Seiichi et al, further in view of Hao et al (US Patent No. 6,363,882) and Shamouilian et al (US Patent No. 6,557,248); and the rejection of claims 6 - 11 under 35 USC 103(a) as being unpatentable over Masuda et al in view of Seiichi et al, Hao et al and Shamouilian et al, further in view of Kholodenko et al (US Patent No. 5,942,039); such rejections are considered to be

obviated by the cancellation of claims 1 - 11 and the presentation of new claims 12 - 17, and such rejections are traversed insofar as they are applicable to the present claims.

As to the requirements to support a rejection under 35 USC 103, reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988), wherein the court pointed out that the PTO has the burden under '103 to establish a prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. As noted by the court, whether a particular combination might be "obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Furthermore, such requirements have been clarified in the decision of In re Lee, 61 USPQ 2d 1430 (Fed. Cir. 2002) wherein the court in reversing an obviousness rejection indicated that deficiencies of the cited references cannot be remedied with conclusions about what is "basic knowledge" or "common knowledge".

The court pointed out:

The Examiner's conclusory statements that "the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software" and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial" do not adequately address the issue of motivation to combine. This factual

question of motivation is immaterial to patentability, and could not be resolved on subjected belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher."... Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion. (emphasis added)

Irrespective of the Examiner's contentions concerning the cited art, applicants submit that it is not seen that any of the cited art, utilized in rejecting the claims of this application, disclose or teach the features of a power source for applying bias power to an electrode on which a substrate to be process is disposed, an insulating layer formed on a surface of the electrode on which the substrate to be processed is disposed, a conductive material formed within the insulating layer, a feeder line connecting the power source and the conductive material and a variable capacitor provided in the feeder line, which features, as described above represent common features of independent claims 12 and 16. Applicants therefore submit that claims 12 and 16 and the dependent claims patentably distinguish over the cited art taken alone or in any combination thereof in the sense of 35 USC 103 and all claims should be considered allowable. Additionally, claim 12 recites the feature of a silicon ring mounted at a position surrounding the substrate to be processed, on the surface of the electrode on which the substrate to be processed is disposed, another conductive material formed within the insulating layer and under the silicon ring, another feeder line connecting the power source and the another conductive material, and another variable capacitor in the another feeder line. Applicants submit that such features are also not disclosed or taught in the cited art when considered with the other features of claim 12.

Moreover, claim 16 recites the feature that the power for applying bias power is a high-frequency power source, and that a direct current power source is connected between the electrode and the high-frequency power source, which features when considered in conjunction with the other features of claim 16 also further patentably distinguish over the cited art in the sense of 35 USC 103.

Thus, applicants submit that each of independent claims 12 and 16 recite features not disclosed or taught by the cited art taken alone or in any combination thereof in the sense of 35 USC 103 and all claims patentably distinguish thereover.

With respect to the dependent claims, applicant submit that claims 13 - 15 which depend directly or indirectly from claim 12 recite further features of the present invention which, when considered in conjunction with the features of independent claim 12, further patentably distinguish over the cited art. For example, claim 14 recites a thickness relationships not disclosed or taught in the cited art. Likewise, claim 17, which depends from independent claim 16, recites the feature of first and second resonance coils coupled or provided in the manner set forth, which features are also not disclosed or taught in the cited art. Thus, applicants submit that the dependent claims recite further features which patentably distinguish over the cited art in the sense of 35 USC 103 and such claims should also be considered allowable at this time.

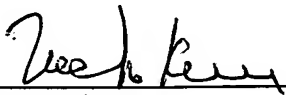
In view of the above amendments and remarks, applicants submit that all claims present in this application patentably distinguish over the cited art should now be in condition for allowance. Accordingly, issuance of an action of favorable nature is courteously solicited.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing

of this paper, including extension of time fees, to the deposit account of Antonelli,
Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 500.39750VX1),
and please credit any excess fees to such deposit account.

Respectfully submitted,

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